
Real Estate Services Division California Department of General Services



Department of Motor Vehicles Quick Response Study (QRS)

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EXECUTIVE SUMMARY

Under the direction of the Department of General Services (DGS) Post-Occupancy Evaluation (POE) Program Executive, the first Quick Response Study (QRS) of the DGS POE Program was conducted in Fall 2001. The QRS provides feedback to the project team and gathers lessons-learned through a brief user questionnaire and a site visit with interviews and walkthroughs. The project site was the Department of Motor Vehicles (DMV) Headquarters, 4th Floor, the second of seven floors undergoing asbestos removal and office renovation.

A QRS Site Team was selected, comprised of DGS project directors, inspector, and building maintenance staff; the DMV Facilities Manager; design consultant representatives; and POE consultants. Project background and customer satisfaction data for the QRS was collected in several ways:

- a paper survey completed by 4th Floor users in October;
- a walkthrough touring interview in December, led by the DMV Renovation Project Team, including the DGS Project Director, the DMV Facilities Manager, the design consultants, the DGS Inspector and DGS Building and Plant Maintenance staff; and
- interviews of several 4th Floor occupants, also in December.

There were several lessons learned as a result of this first QRS.

Lessons-learned for DGS and DMV:

- Overall **employee satisfaction was high**, with an 86% satisfaction rating.
- The DMV project represents a **good level of coordination** between the client, the project director and the design team. This was facilitated by both a **single client point-of-contact who is knowledgeable about facilities issues and is empowered to make decisions** and a **knowledgeable and dedicated DGS project director**.
- The DMV Project included a **high level of employee communication and feedback, with newsletters, websites, progress meetings and other sessions**. Other stakeholders, such as the adjacent California Highway Patrol, were also kept apprised of project progress.
- The project team had made a concerted effort to **derive lessons-learned from renovation of the 2nd floor**. These included both process improvements, e.g. performing asbestos removal only at night, and aesthetic and functional changes, e.g. allowing more natural light into the elevator lobbies.
- The project team devoted a **modest budget for aesthetics and amenities** on the most visible elements such as **elevator lobbies, entries to departments and main walkways**. These areas got positive marks from DMV staff.

- Staff were very concerned about **comfort at their workstations**, particularly about airflows, lighting and noise privacy.
- Staff were also concerned about the **restroom design features**, particularly about the **ability to keep the restrooms clean in everyday use**, e.g. having faucets that did not splash water onto countertops and having paper towels near the sinks.
- Women staff members missed the sofa that had been available in the old women's lounge on their previous floor and felt that they could sometimes take a brief rest rather than having to leave work if they felt poorly; a **unisex quiet room will be considered in future renovations**.
- Considerable attention was devoted to making the building **easy to maintain** such as by having **accessible and well-labeled electronic and mechanical equipment**, using **easily replaced standard fixtures and finishes** as well as other measures.

Lessons for Further Exploration:

- Several DMV managers complained that they were **unable to conduct confidential conversations**; in the future measures might be considered to provide a greater sense of privacy while maintaining visual supervision and good use of space.

Lessons for the QRS Process:

- The **combination of data collection tools**, including questionnaires, walkthroughs and interviews, was seen as **helpful** by participants.
- The **process** needs to be **brief and efficient**.
- The DGS **POE Team should take the lead** on the QRS activities rather than the project director who has limited time to devote to the POE effort.
- The DGS project directors involved in this pilot QRS thought that it would be **useful to be involved with two or three QRS projects per year** to gather lessons from other projects that could be applied to their own projects.
- An efficient process needs to be developed to **make lessons-learned available** to DGS and the client in order to allow knowledge gained over time to be used on future projects. This should be a web-based application.

NOTE:

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INTRODUCTION

The DGS POE Program

In December 2000, DGS embarked on the development of a POE Program as part of its Excellence in Public Buildings (EIPB) Initiative. POE was viewed as a program that would help the State build better buildings for users and operators. Consistent with Executive Order D-16-00 issued by Governor Davis, POE will support the Governor's goal that state buildings will be: "models of energy, water, and materials efficiency; while providing healthy, productive and comfortable indoor environments and long-term benefits to Californians."

The POE Charter Team, comprised of DGS managers and consultants, prepared a strategic plan that was accepted in August 2001. It included goals, approach, benefits and implementation strategies, as well as an outline of several key activities of the Program, including the Quick Response Study (QRS).

Quick Response Study (QRS).

The QRS is one of the five key components of the DGS Program. A QRS is completed on a facility shortly after occupancy, ideally within the first two to four months. Primary goals of a typical DGS QRS are:

1. Provide customer service by inviting building users to give feedback regarding their work environment and the project process.
2. Provide a vehicle for the project team to find out how successful the building and the project were, and to know of issues or concerns that can be fine-tuned soon after occupancy to increase user satisfaction and effectiveness.
3. Discover "lessons learned" from the project team, particularly lessons that can be shared across project and building types, including design features, construction issues or project process elements.

Subsequent to the acceptance of the Strategic Plan, the team developed an Implementation Plan that was approved by the Policy Executive Committee (PEC) in November 2001. It proposed several projects to be included in the early phase of the program, with the DMV Headquarters 4th Floor suggested as the pilot QRS.

Goals of this Pilot QRS of the DMV Headquarters, 4th Floor

In addition to the typical QRS project goals, the DMV QRS, as the first activity of the POE Program, had additional goals. These included:

1. Orient DGS and the client agencies to the POE Program and the QRS.
2. Test QRS procedures for potential refinement in future projects.
3. Train DGS managers to conduct future ORS projects.

DMV PROJECT BACKGROUND

The Department of Motor Vehicles Headquarters Building East is one of five buildings on the DMV campus at 24th and Broadway in Sacramento. It is comprised of six floors of approximately 75,000 s.f. each, plus a 70,000 s.f. basement and a 50,000 s.f. penthouse (the 7th floor).

The building was constructed in the early 1960's and was considered "state-of-the-art" at the time. However, now—some 40 years later—the building systems are dated, the building contains asbestos, does not meet current accessibility requirements, and some seismic upgrade is required.

The building consists primarily of typical office environment spaces (offices, workstations, conference rooms, break rooms, storage, etc.) with additional unique spaces that include a child care center, a cafeteria, and several mail processing machine areas.

The building also houses a central heating and cooling plant, which makes chilled water and steam to serve the heating and cooling needs of four buildings on the campus. The building infrastructure also includes an emergency generator, uninterruptible power system, and redundant electrical utility feeds.

DMV East Building Project Scope

The DMV East Building project scope includes:

- Removal of asbestos and other hazardous building materials.
- Removal of accessibility barriers (full Americans with Disabilities Act and California Title 24 compliance).
- Installation of upgraded electrical systems and capacity.
- Installation of new energy efficient glass, sunscreens and insulation systems.
- Installation of energy efficient lighting and mechanical systems.
- Installation of new, updated finishes and fixtures to create a pleasant working environment.

- Construction of improved employee amenities (restrooms, amenity bars, etc.).
- Construction of a new, up-to-date employee cafeteria with added outdoor seating.
- Construction of state-of-the-art conference room facilities.
- Improved vehicular and pedestrian access to the building and surrounding site.
- Improved day care facilities.

The building is being renovated in the following order: 2nd, 4th, 1st, 3rd, 5th, 6th and 7th floors, followed by a complete re-skin of the building exterior.

4th Floor Renovation

The subject of the QRS was the 4th Floor Renovation. This portion of the building renovation project began in May of 2000. Occupancy was phased, with the first occupants moving onto the floor in July 2001 and the last occupants moving in November 2001.

Most of the approximately 400 occupants of the 4th floor work in open workstations with a few enclosed offices around the perimeter of the floor. One section of the floor, approximately 12,000 square feet, is occupied on two separate shifts (18 hours a day) by a unit that receives thousands of automobile registration payments daily. This area is secured and separated from the rest of the floor by a glazed wall.

DMV QRS PROCESS

The DMV QRS process included the following basic steps:

1. Orienting the customer agency to POE and QRS and developing a work plan for the QRS activities.
2. Paper survey of building users to find out what aspects of the building they are most and/or least satisfied with. The survey provided for both objective rating of various features as well as the opportunity to comment on specific issues or features.
3. Selecting a QRS Site Team, a group that included the DGS Project Director, the DMV Facilities Manager, the design consultant, Building and Plant Maintenance Staff, other DGS Project Directors being trained to conduct QRS activities, and the POE consultants. They received orientation materials about QRS and the DMV project in advance of the site visit.

4. QRS Site Team Meeting that included:
 - a. Overview of the project by the project team, including scope, strategies, challenges and lessons learned.
 - b. Walkthrough (touring interview) of the 4th Floor, led by the DMV Facilities Manager, with input and discussion from the other project team members.
 - c. Brief tour of the 2nd Floor, which was completed prior to the 4th Floor, for purpose of illustrating lessons already learned and applied to the 4th Floor project.
 - d. Consultant review of the findings of the occupant survey.
 - e. Interviews with representative building users to clarify issues raised in the survey and to learn of particularly successful building elements or those that are causing problems for the users.
 - f. Team summary of potential fine-tuning issues for the project team to investigate further.
 - g. Development/summary of lessons learned for both the project team to use in the future as well as to be shared with other project teams on concurrent and future projects.
5. Compilation of meeting notes and transmittal to the Project Director and Facilities Manager.
6. Preparation of summary report.

SURVEY/QUESTIONNAIRE RESULTS

The DGS Occupant Satisfaction Survey, a 56-item questionnaire, was administered in October 2001. **Response rate was good:** 187 surveys were returned, for a response rate of 47 percent.

The survey was designed to investigate how successfully the recently renovated 4th Floor is meeting the needs of the Department of Motor Vehicles' employees and the design goals established by the project team. The goal was to assess user satisfaction with the project, to determine the potential opportunities for fine-tuning and gather lessons-learned.

Some key findings:

- **Overall, satisfaction levels were very high.** Most respondents were at least somewhat satisfied with almost all aspects of their office setting and many were very satisfied. It should be noted that although staff expressed least satisfaction with temperature, noise level and sound privacy, some of these concerns had been at least partially addressed between the administration of the survey and the walkthrough by redirecting air vents and redirecting light sensors.
- **Ergonomic aspects** of the office such as keyboard and mouse were well received, though respondents were somewhat less satisfied with their chairs.
- In general, respondents were **especially satisfied** with the light, color/appearance, conference facilities and visual comfort.
- Respondents were **somewhat less satisfied** with the temperature, noise level and sound privacy. (DMV and the design team were aware of problems with vents blowing on workers and had made some changes between the administration of the survey in late October and the site visit in early December.)
- In their open-ended comments, **some respondents complained about lights going out after hours when they were working.** This also had been partially corrected by redirecting the sensors; however, in future projects the design team will consider installing additional sensors.

Overall Satisfaction was High

On average, respondents were at least “somewhat satisfied” with 17 of the 24 categories assessed in the survey. While we do not yet have benchmarks from other State buildings, these results are quite high for surveys of this kind. Respondents were quite satisfied with the quality of the light, overall appearance, conference facilities, visual comfort, mouse and keyboard. They were slightly satisfied with visual privacy, coffee room and vending machine, chair, and air movement; they were somewhat dissatisfied with temperature, noise level, and sound privacy.

Means of level of satisfaction

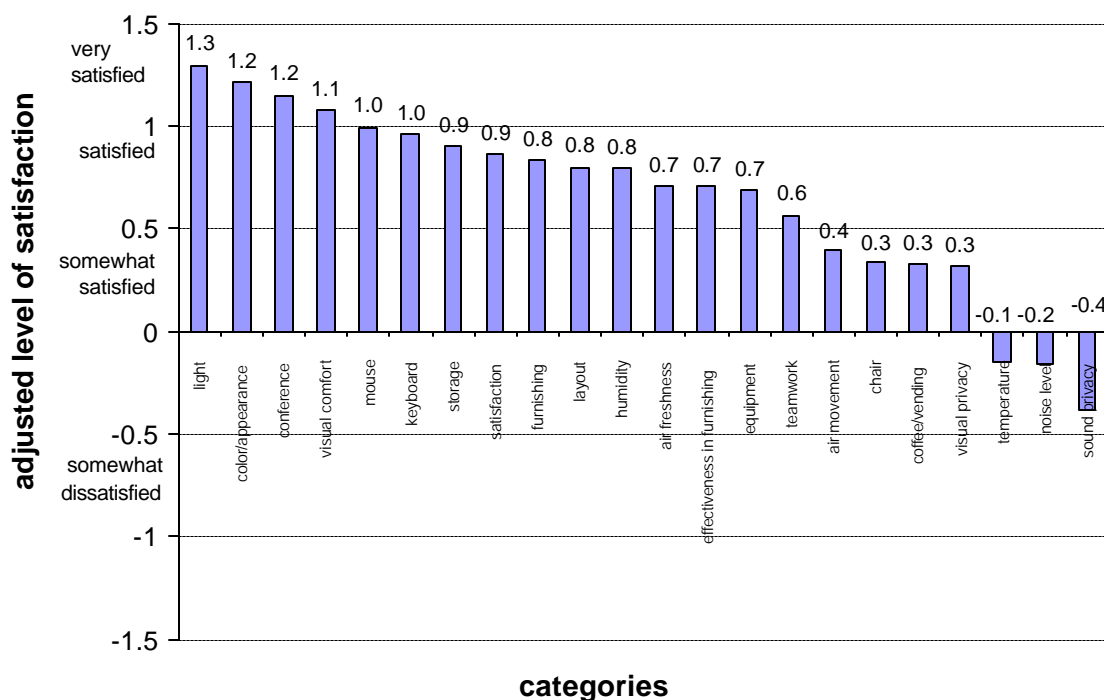


Figure 1: Means of level of satisfaction for all 24 categories in the survey.

Some Staff were Dissatisfied with Temperature, Noise, Level, Privacy

Table 1 shows levels of satisfaction tabulated in percentage. The categories are sorted in descending order of satisfaction according to total percentage satisfied.

| | very sat. | sat. | some. sat. | some. dis. | very dis. | very dis. | Total % sat. |
|-----------------------------|--------------|------|---------------|---------------|--------------|--------------|-----------------|
| Light | 19 | 54 | 20 | 3 | 3 | 1 | 93 |
| Color/appearance | 19 | 54 | 19 | 2 | 2 | 4 | 92 |
| Visual comfort | 14 | 50 | 23 | 6 | 6 | 1 | 87 |
| Conference room | 17 | 55 | 16 | 4 | 3 | 5 | 88 |
| Mouse | 13 | 53 | 19 | 5 | 5 | 5 | 85 |
| Humidity | 9 | 43 | 31 | 7 | 5 | 5 | 83 |
| Keyboard | 12 | 52 | 18 | 9 | 6 | 3 | 82 |
| Air freshness | 8 | 39 | 33 | 8 | 8 | 4 | 80 |
| Furnishing | 14 | 44 | 22 | 9 | 4 | 7 | 80 |
| Layout | 14 | 42 | 23 | 10 | 5 | 6 | 79 |
| Effectiveness | 9 | 41 | 28 | 11 | 5 | 6 | 78 |
| Storage | 24 | 40 | 14 | 8 | 4 | 10 | 78 |
| Equipment | 13 | 39 | 25 | 10 | 5 | 8 | 77 |
| Support for teamwork | 9 | 45 | 16 | 14 | 9 | 7 | 70 |
| Chair | 9 | 32 | 27 | 9 | 11 | 12 | 68 |
| Air movement | 8 | 31 | 28 | 17 | 9 | 7 | 67 |
| Coffee room/Vending machine | 7 | 35 | 22 | 17 | 8 | 11 | 64 |
| Visual comfort | 12 | 28 | 24 | 12 | 12 | 12 | 64 |
| Noise level | 4 | 26 | 22 | 16 | 13 | 19 | 52 |
| Temperature | 6 | 19 | 25 | 20 | 15 | 15 | 50 |
| Sound privacy | 3 | 18 | 25 | 18 | 14 | 22 | 46 |

Table 1: Level of satisfaction in percentage. The data is sorted by the percentage of total satisfied column.

Respondents were satisfied with the light and visual comfort

Respondents were quite satisfied with light, visual comfort, air freshness and humidity; however, they were dissatisfied with the air movement and temperature.

Among all the comfort categories, the percentage of people who are dissatisfied (including somewhat dissatisfied, dissatisfied, and very dissatisfied) with temperature is higher than for any other category -- 45%. The second highest category of dissatisfaction is with air movement -- 33%.

93% of all the participants reported that they were satisfied, including somewhat satisfied, satisfied, and very satisfied, with the light.

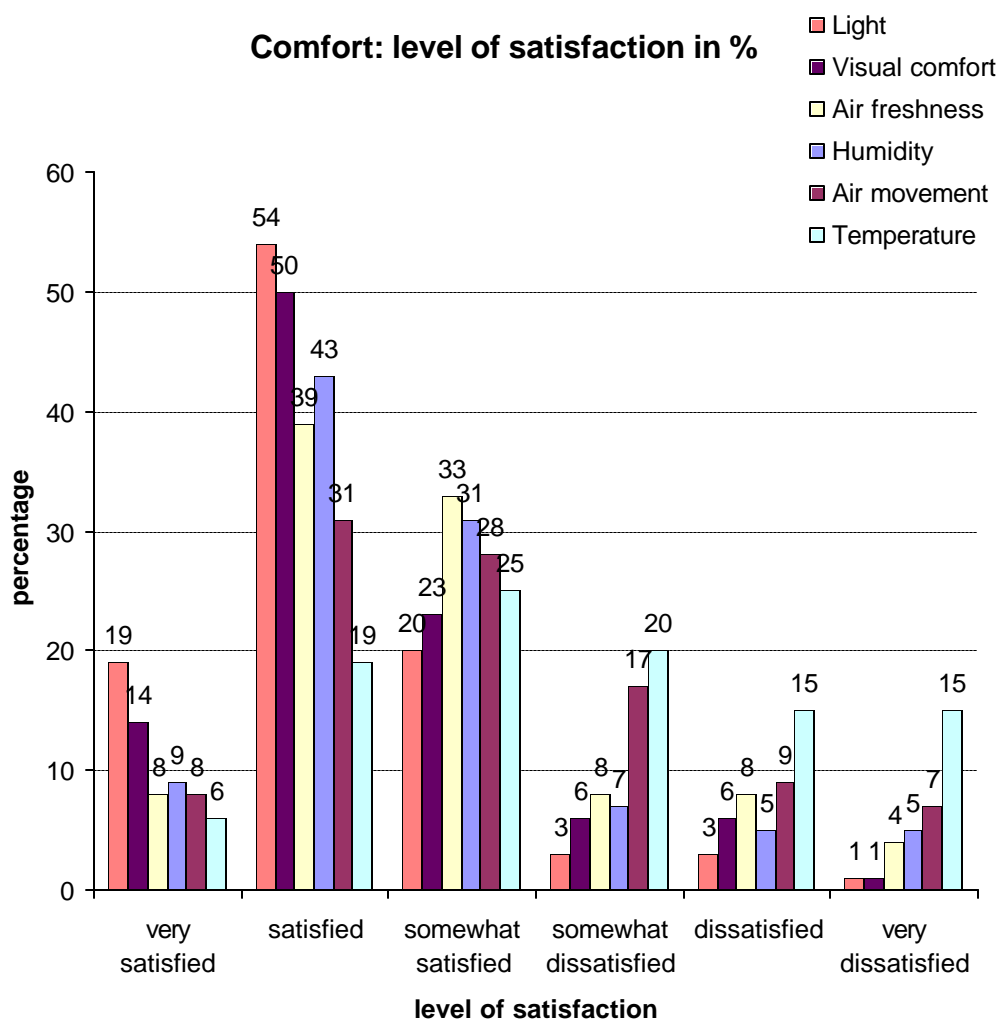


Figure 2: The level of satisfaction in percentage for categories in the Comfort section.

Open Ended Questions and Comments

In the first open-ended question, participants reported 3 **best things** about their workspace. Privacy and ownership were the most frequently mentioned qualities.

Light, newness, space, furniture, and cleanness were mentioned respectively 33, 30, 26, 25, 25 times.

The least mentioned ones were ambiance, visibility and view, temperature, air, comfort, acoustics, and security, mentioned respectively 5, 4, 3, 2, 2, 1, and 1 times.

Q-14 What are the three best things about this workspace? (69% response rate) Number of Responses

| | |
|-----------------------|----|
| Privacy/Ownership | 36 |
| Light | 33 |
| New | 30 |
| Space | 26 |
| Furniture | 25 |
| Clean | 25 |
| Appearance/Colors | 19 |
| Service/Support Areas | 17 |
| Restrooms | 13 |
| Location | 12 |
| People | 12 |
| Others | 8 |
| Ambiance | 5 |
| Visibility/View | 4 |
| Temperature | 3 |
| Air | 2 |
| Comfort | 2 |
| Acoustics | 1 |
| Security | 1 |

Table 2: Tabulated categories of best things about the workspace.

Open Ended Questions and Comments

In the second open-ended question, subjects reported the **specific problems** in their workspace.

- 38 participants listed inconvenient, broken, or missing furniture; 8 mentioned the lack of microwave; and 7 mentioned uncomfortable chairs.
- 22 participants commented about support areas, e.g. lack of restrooms (the highest with 12 participants); break rooms (the second highest with 6 participants); the lack of lounge areas in women restrooms; conference room; mail stations; and storage spaces.
- 20 participants commented about the noise of people, machines, or phone.
- 17 participants commented about the cold temperature, usually together with excessive airflow.
- 16 participants commented about crowded workspace, either with too many people or too much office equipment or furniture.

15 participants commented about lights, e.g. lights frequently going off; the control of light; and the lack of natural light.

Q-15 Please list any additional specific problems or deficiencies that you feel should be corrected. Be as specific as possible about room or location of the problems: (57% response rate)

Number of Responses

| | |
|---|----|
| Furniture (inconvenient, broken, missing) | 38 |
| Support areas (break room, restrooms, conference, mail stations, storage) | 22 |
| Noise (people, machine, phone) | 20 |
| Temperature (cold) | 17 |
| Space (crowded, layout) | 16 |
| Lights (off, natural light, control, general) | 15 |
| Air (dust, flow) | 11 |
| Privacy (dividers, cubicles) | 6 |
| Water in the restrooms (too hot) | 4 |
| Layout | 3 |
| People | 2 |
| Corridors (mirror) | 2 |
| Cleanliness | 1 |
| Appearance | 1 |

Table 3: Tabulated categories of problems in the workspace.

Open Ended Questions and Comments

In the third open-ended question, participants were asked to make **specific suggestions for further improvements**.

- Only 32% (only 60 out 187) of all the participants made specific suggestions. This is one of the lowest response rates in the survey. Most of the comments are in the form of complaints rather than suggestions. There are few specific suggestions.

The most frequently mentioned suggestion was a warmer temperature; the second most mentioned was a larger space, and the third most mentioned was to have more consultations prior to designing.

Q-16 Please provide any other comments or suggestions that would improve future projects (32% response rate):

Number of Responses

| | |
|----------------------------|---|
| Warmer temperature | 6 |
| Space (the layout, larger) | 5 |
| More consultations | 4 |
| Have unit break rooms | 3 |
| More storage space | 3 |
| Team collaboration | 2 |
| Security (fire, doors) | 2 |
| Light sensor | 2 |
| More outlets | 2 |
| Coffee machine | 2 |
| Carpet | 2 |
| More phones | 2 |
| Computers | 2 |
| Better sound privacy | 1 |
| Mirrors | 1 |
| Locks | 1 |
| Meeting room | 1 |
| Microwave | 1 |
| Cubicles | 1 |
| Comfortable chairs | 1 |
| Parking | 1 |
| To keep clean | 1 |
| More group identify | 1 |
| Noise control | 1 |

Table 4: Tabulated categories of workspace improvements.

WALKTHROUGH RESULTS

In addition to the survey/questionnaire results that were reviewed with the QRS Site Team, the Team gathered considerable information from the Walkthrough (touring interview) of the 4th and 2nd Floors.

The Walkthrough provided an opportunity for the Site Team members to visit all the units on the 4th Floor. The Team saw individual workstations as well as common areas; observed several of the building features; and heard from the Facility Manager, Project Director and Architects about particular challenges, successes and modifications that were made to the 4th Floor, including lessons learned from their previous experience with the 2nd Floor renovation.

Some of the key elements that were pointed out during the walkthrough include:

- Welcoming aspect of the **elevator lobby**, including more glazing and borrowed light from the conference room.
- **Amenity rooms** (kitchenettes) to provide suitable place for coffee service and cleanup, refrigerator, microwave, etc.
- **Copy/supply rooms** to provide appropriate common storage and work areas.
- **Restrooms** features -- for accessibility, e.g. easy touch power operated doors, with power assists mounted on the wall at entry as well as touch doors; entry from two sides of the restroom for more convenient access; ceiling hung partitions and more outlets in the restroom vestibules to allow for easier cleaning of restrooms.
- More **outlets in corridors** (than on other floors) for easier cleaning by maintenance staff.
- **Data closet** has each workstation identified by number and allows telecommunications staff to patch user into different servers as needed.
- **Wall protectors** and corner guards in areas where mail and waste carts are moved frequently.
- **Janitor closets** include more built-in storage for short-term supply of products to provide speedier response to occupant need. Since building occupants now have a sink available to them in amenity areas, janitor rooms can now be locked for better control of products.
- **Wayfinding** is easier than on the 2nd Floor, with a visual connection from north to south and the ability to see natural light from every workstation.

- **HVAC zone temperatures can be controlled by occupants** within a range established by the maintenance staff (within State guidelines).
- **Finishes** for durable surfaces are of neutral tones; more "trendy" colors were used for painted surfaces that can be change easily as trends change over time.
- **Carpet color and pattern** was chosen to mask common office environment spills, something most appreciated by maintenance staff.

The old **window wall system** is being removed to access the brick peers which will receive a fiber composite wrap to address a seismic concern. Upon completion of this work a new window wall system will be constructed to address insulation qualities lacking in the old wall system. Future projects also will address this concern but limitations of working in a building with occupied floors must be considered.

INTERVIEWS OF BUILDING OCCUPANTS

The interviewed occupants represented a range of personnel from various units on the 4th Floor, including a number of different roles and responsibilities. They were organized into three groups comprised of three or four 4th Floor staff and each group was interviewed by the Site Visit Team for twenty minutes. The group members were asked to give their perspective on the renovation -- both the aspects they liked as well as their concerns about the space or building features. Most of the participants had solicited input from other employees in their units, so their comments reflected more than just their own points of view.

Some of the issues and concerns expressed by the interviewees are noted below.

- Most staff **appreciated the improvement in aesthetics, especially in the elevator lobbies and conference rooms.**
- Many employees in the open workstations feel like **their desks are too close together**, having inadequate space to move around easily without bumping into one another.
- Some employees in cubicles find partitions inadequate to provide **appropriate acoustic privacy** and prevent overhearing even quiet phone conversations of neighbors in adjacent cubicles.
- **Restroom issues** were mentioned by several interviewees. These include concerns about water faucet location relative to the sink, resulting in splashing; too few paper towel dispensers; frequent slowness and malfunctioning of flushing mechanism; and inability to regulate water temperature, especially in order to have cold water for teeth brushing.

- Some employees believe there are **not enough small, private conference areas** for one-on-one meetings, particularly for issues that need to be dealt with immediately.
- Some employees feel **uncomfortable** with the design of the workstations that require their **having their backs to the workstation opening**.
- **Air flow** was mentioned as a problem in some areas -- too forceful and uncomfortably direct on some employees.
- Some female employees miss having a "**women's lounge**" associated with the restroom, reporting that sometimes being able to lie down for a short time eliminates the need to go home sick. The Facility Manager reported that inclusion of a "quiet room" that could be used for this purpose is being considered for future designs.

The DGS Project Director said he found this part of the QRS process the most helpful - a vehicle for hearing and understanding the concerns of the people who work on the floor day after day. It was a very "personal" aspect of the process and provided an opportunity for both the DMV Facilities Manager and the DGS Building and Property Maintenance (BPM) staff to respond to many of the concerns at once: providing immediate solutions, correcting misconceptions, and arranging for follow-up with particular individuals. It afforded both DGS and DMV a forum to hear and respond to the concerns of many within a short period of time -- and to provide the kind of customer service that supports a successful transition and occupancy of new space.

LESSONS LEARNED

Process Issues

- **Maintenance staff were included in the design and occupancy meetings** to get their operational perspective. This resulted in numerous improvements and a building that is viewed as efficient to operate.
- **Maintenance staff were included in gathering "lessons learned" from previous floors.** One staff member suggested that additional outlets be added in the restrooms to allow for easier cleaning. When this suggestion was implemented, it not only made maintenance easier but changed her attitude toward her job. She had been heard and her opinion had been valued.
- The Facility Manager held project **progress meetings** with Unit Managers throughout the process so they would be apprised of project status, when there were going to be inconveniences, etc. A **newsletter and website** were also used to keep DVM employees apprised of project process.

- Manufacturers' representatives provided **training on the new systems and equipment** that was very useful to the maintenance staff.
- Design was funded on a floor-by-floor basis. **Design funding up front** would be more efficient in a multi-phase project.
- There was a **need for an overall plan** – a comprehensive study showing how the project would be phased.
- **Demolition and abatement was conducted at night** to keep noise down.
- The design consultants found it very helpful to have a **single client representative**, qualified and empowered to make decisions after gathering feedback from occupants, as opposed to dealing with a committee of client representatives.
- Despite the attempts to conserve materials for cost and sustainability reasons, it was **not found to be cost-effective to attempt to save walls and materials** because they were not compatible with new systems, technology or code changes.
- The Project Team– found it beneficial to **keep neighboring businesses and residents informed** of plans and progress.

Design Issues

A design challenge in this project was to create visual interest and a sense of quality in a project with a modest budget for amenities. Several strategies were employed.

- **Each floor was given a theme** to pull design features together; the 4th Floor Theme – Tracks, which is one aspect of a “Transportation” theme – included horizontal banding in the conference room to set the stage and pull the floor together.
- The design team was concerned about **how to prevent the color palate from seeming dated** after a few years. To avoid this problem, they used strong colors on painted surfaces that can be changed with moderate cost, while stone and other permanent materials were specified in neutral shades.
- **Low panels in the work areas** allow outside light to reach interior spaces as well as providing a view of entire unit areas for supervisors.
- **Varying ceiling heights** were used to add more interest and depth to the open space environment.

- There was a focus on creating **very pleasant public areas**, e.g. lobby and conference rooms. High quality finishes and a filtered view to the outside are evident as soon as people emerge from the elevators.
- A curving “**main street**” connects the north and south cores (containing toilet, conference, copy and amenity rooms) of the building to aid wayfinding. This connection is articulated with special carpet designs, lighting, a suspended ceiling feature and furniture placement.

Operations and Maintenance

- **Utility closets** were well-marked and allow easy relocation of data and phone lines.
- **Suspended acoustical ceilings** have neat, professional-looking **labels** showing what fans and electrical boxes are above them.
- Due to the increasing attention to product allergies, the maintenance staff are introducing **fragrance-free cleaning products** in this building.

ELEMENTS FOR FURTHER EXPLORATION

- In order to assess the **effects of the new environment on employee satisfaction and productivity**, the Facility Manager has asked unit managers to pay attention to productivity, attendance and employee turnover since they moved into the new space. The production nature of much of the work allows quantification of productivity and employee records will provide information regarding turnover and attendance.
- In response to employee concerns that there are too few **wall clocks** available, the Facility Manager will pursue getting more wall clocks on the 4th Floor.
- The Facility Manager will pursue use of **mirrors at corridor intersections** to allow them to see approaching traffic.
- In response to employees' **request for lockable storage for supplies specific to a given unit**, the Facility Manager will consider assigning the storage cupboards in the copy/supply rooms to specific units and providing locks for the cupboards.
- Noise from adjoining work groups can sometimes be bothersome, and seems more annoying than similar noise levels from one's own group. **Where possible, symbolic or actual buffers between work groups** might be considered.

- The Facility Manager is pursuing ways **to add art to the building** as there was no room for it in the budget.

APPENDICES